

REMARKS

At the time of the Final Office Action dated May 29, 2003, claims 1-7 were pending and rejected in this application. Claims 1 and 4 have been amended to each recite that each of an inner ring, an outer ring and a rolling element are formed from the same steel material recited in the claims. Applicants submit that the present Amendment does not generate any new matter issue.

CLAIMS 1-7 ARE REJECTED UNDER 35 U.S.C. § 103 FOR OBVIOUSNESS BASED UPON MURAKAMI IN VIEW OF OCHI ET AL., EP 0933440 (HEREINAFTER OCHI)

In the fourth enumerated paragraph of the Office Action, the Examiner asserted that it would have been obvious to one having ordinary skill in the art to modify Murakami to limit the ranges for P, S, Al, Ti, O, and N, as taught by Ochi. This rejection is respectfully traversed.

Independent claims 1 and 4, as amended, each recite that each of the inner ring, outer ring and rolling element are formed from the same steel material. In contrast, Murakami teaches that the inner ring and the rolling element are made of steels of different types in order to satisfy the conditions that the average amount of the retained austenite of the inner ring is not more than 4% by volume and the average amount of the retained austenite of the rolling element is from 20 to 30% by volume (column 5, lines 37-58). This is also clearly seen from Table 1; Examples 1, 3 and 4 shown in Table 2; and Examples 1-4 shown in Table 3 of Murakami. From these tables, Murakami clearly teaches that different steel materials are used for the inner ring and the rolling

elements in order to allow the rolling element to have such a large amount of retained austenite (i.e., 20 to 30% by volume).

Unlike the claimed invention, which is directed to ensuring dimensional stability of a rolling element under a high-temperature environment, such dimensional stability would not be possible from Murakami because the austenite would decompose in a high-temperature environment. In other words, Murakami cannot address both issues of heat resistance and dimensional stability. In contrast, the present invention uses the same type of steel for the inner ring, the outer ring and the rolling element so that both issues of heat resistance and dimensional stability can be addressed.

The secondary reference of Ochi aims to prevent coarsening of grains during carburizing; and accordingly, Ochi states that it is indispensable to add niobium. However, the addition of niobium is considered necessary by Murakami. Thus, one having ordinary skill in the art would not consider a combination of Ochi and Murakami to be obvious. Furthermore, Ochi neither address the issue concerning a high-temperature environment nor discloses high-temperature tempering. Therefore, Applicants respectfully submit that one having ordinary skill in the art would not have arrived at the claimed invention, as recited in claims 1-7, based upon the combination of Murakami in view of Ochi.

Furthermore, the Examiner's statement regarding claim 4 that "the value disclosed by Murakami et al is close enough to the presently claimed range ... that one of ordinary skill in the art would have expected that the two processes would produce the same properties in the resulting bearing" is immaterial. The claimed invention, as recited in claim 4, is directed to the

process and not the results of the process. Thus, the Examiner is required to establish that the applied prior art teach or suggested the limitations of the claimed process. The Examiner's citation to the cases and M.P.E.P. § 2144.05 is misplaced since the Examiner has neither established that claimed and disclosed ranges overlap nor established that the tempering range is an art-recognized, result-effective variable as that term is used in M.P.E.P. § 2144.05(II)(B).

**CLAIMS 1- 4 ARE REJECTED UNDER 35 U.S.C. § 103 FOR OBVIOUSNESS BASED UPON
MAEDA, U.S. PATENT NO. 6,197,128 (HERIENAFTER MAEDA '128) IN VIEW OF OCHI**

In the fifth enumerated paragraph of the Office Action, the Examiner asserted that it would have been obvious to one having ordinary skill in the art to modify Maeda '128 to limit the ranges for P, S, Al, Ti, O, and N, as taught by Ochi. This rejection is respectfully traversed.

As discussed above, claims 1 and 4 each recite that each of the inner ring, outer ring and rolling element are formed from the same steel material. This limitation, however, is neither taught nor suggested by the applied prior art. Furthermore, the Examiner's statement regarding claim 4 that "the value disclosed by Maeda is close enough to the presently claimed range that one of ordinary skill in the art would have expected that the two processes would produce similar results" is immaterial. The claimed invention, as recited in claim 4, is directed to the process and not the results of the process. Thus, the Examiner is required to establish that the applied prior art teach or suggested the limitations of the claimed process. The Examiner's citation to the cases and M.P.E.P. § 2144.05 is misplaced since the Examiner has neither established that claimed and disclosed ranges overlap nor established that the tempering range is an art-recognized, result-effective variable as that term is used in M.P.E.P. § 2144.05(II)(B).

Applicants, therefore, respectfully submit that the imposed rejection of claims 1-4 under 35 U.S.C. § 103 for obviousness based upon Maeda '128 in view of Ochi is not viable and, hence, solicit withdrawal thereof.

**CLAIMS 1-3 ARE REJECTED UNDER 35 U.S.C. § 103 FOR OBVIOUSNESS BASED UPON
MAEDA ET AL., U.S. PATENT NO. 5,595,610 (HEREINAFTER MAEDA '610) IN VIEW OF OCHI
AND FURTHER IN VIEW OF MITAMURA, GB 2,235,698**

In the sixth enumerated paragraph of the Office Action, the Examiner asserted that it would have been obvious to one having ordinary skill in the art to modify Maeda '610 in view of Ochi and Mitamura to arrive at the claimed invention. This rejection is respectfully traversed.

In the statement of rejection, the Examiner asserted that Mitamura teaches using high-temperature tempering to add strength to a rolling bearing. Previously, Applicants have argued that the Examiner has not established why one having ordinary skill in the art would believe that tempering at 240-550°C would work for the materials disclosed by the other applied references. The Examiner has responded by arguing that since the ingredients of the applied references are similar, "one of ordinary skill in the art would have had a reasonable expectation of successfully applying the high temperature tempering step of Mitamura to the steels of Maeda et al or Ochi et al."

Applicants note that all the Examiner has done is merely point out that the applied references have certain constituents with overlapping ranges. The Examiner, however, has failed to factually establish that one having ordinary skill in the art would have considered the

compositions of the references to be close enough to one another to establish a "reasonable expectation of success." The Examiner's factually unsupported statement alone that the overlap of these constituents is enough is insufficient to establish a "reasonable expectation of success" in modifying the combination of Maeda '610 and Ochi in view of the tempering step of Mitamura. Although the Examiner states that the steel composition of Mitamura and Ochi overlap for the major ingredients (C, Cr, Si and Mn), it is the presence or lack thereof and/or the amount of the "minor ingredients" that also makes a significant difference in the final properties of these materials.

Applicants note that this art is littered with examples where the addition of just one constituent, or the subtraction of just another constituent, or even the change of a range by a tiny amount can significantly change the properties of a particular material. Given the sensitivity of these materials to the type and amount of constituents therein, how can one with ordinary skill in the art have a reasonable expectation of success when Maeda '610, Ochi and Mitamura have considerable different constituents? For example, Mitamura does not disclose any nickel whereas both Maeda '610 and Ochi disclose the use of nickel. Mitamura also does not disclose any molybdenum whereas both Maeda '610 and Ochi disclose the use of molybdenum. As previously discussed, Ochi teaches that it is imperative to use niobium whereas neither Maeda '610 nor Mitamura disclose the use of niobium. Therefore, one having ordinary skill in the art would not have considered the materials disclosed by Ochi, Maeda, and Mitamura to be so close that a process (i.e., tempering) used in one could be used with a reasonable expectation of success with a combination of the other materials.

**CLAIMS 1-3 ARE REJECTED UNDER 35 U.S.C. § 103 FOR OBVIOUSNESS BASED UPON
OCHI IN VIEW OF MITAMURA**

In the seventh enumerated paragraph of the Office Action, the Examiner asserted that it would have been obvious to one having ordinary skill in the art to modify Ochi in view of Murakami to arrive at the claimed invention. This rejection is respectfully traversed.

Applicants note that this rejection uses the identical references to the previously rejection except that this rejection omits Maeda, and this rejection cites the Japanese counterpart of Mitamura, whereas the previous rejection cited the British counterpart of Mitamura. In this regard, Applicants incorporate herein the arguments made in the previous rejection, as those arguments apply to this rejection. Specifically, the materials disclosed by Ochi and Mitamura are significantly different, and the Examiner has failed to factually establish that one having ordinary skill in the art would have considered the materials of these references to be close enough to one another to have a "reasonable expectation of success" in combining these references to arrive at the Examiner's asserted benefit. Therefore, Applicants respectfully solicit withdrawal of the imposed rejection of claims 1-3 under 35 U.S.C. § 103 for obviousness based upon Ochi in view of Mitamura.

Applicants have made every effort to present claims which distinguish over the prior art, and it is believed that all claims are in condition for allowance. However, Applicants invite the Examiner to call the undersigned if it is believed that a telephonic interview would expedite the prosecution of the application to an allowance. Accordingly, and in view of the foregoing

remarks, Applicants hereby respectfully request reconsideration and prompt allowance of the pending claims.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417, and please credit any excess fees to such deposit account.

Respectfully submitted,

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